Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1-58. (Cancelled)

59. (Currently Amended) A method for rendering an image of selected tissue on the basis of [~~displaying~~] spectral data [~~corresponding to a tissue~~], the method comprising

[~~(a)~~] scanning a series of points within the selected tissue with radiation;

[~~(b)~~] detecting radiation reflected from the selected tissue;

obtaining spectral data from the reflected radiation;

[~~(c)~~] processing the spectral data [~~detected radiation~~] to generate a set of numbers, wherein each number in the set of numbers characterizes a different point of [~~scanned~~] selected tissue,

wherein each number is indicative of a probability that a portion of selected tissue belongs to a particular class, and

wherein the portion of selected tissue is located at the point characterized by the number;

defining a band having first and second end points corresponding to first and second values of the probability;

defining a continuous grade output having a beginning value, an ending value, and a set of values between the beginning and ending value;

determining that a number associated with a first portion of the selected tissue lies outside the band;

representing the first portion using an end point of the continuous grade output;

determining that a number associated with a portion of the selected tissue lies within the band; and

[(d)] converting the [set of numbers] number into a continuous grade output value between the beginning value and the ending value, the continuous grade output value being selected to correspond to the location, within the band, of the number that characterizes the portion of the selected tissue [without a threshold]; and

representing a portion of an image corresponding to the portion of the selected tissue using the continuous grade output value;

whereby, for each portion of the image, the value of the continuous grade output used to generate that portion of the image is indicative of the probability that a corresponding portion of selected tissue that is classified as belonging to a particular class does, in fact, belong to the particular class.

60. **(Original)** The method of claim **59**, wherein representing a portion of an image comprises representing a portion using a color from [~~the continuous grading is represented by~~] a false color scale.

61. **(Original)** The method of claim **59**, wherein representing a portion of an image comprises representing a portion using a sound characteristic selected from the group consisting of [~~the continuous grading is represented by a gray scale or~~] different tones, different pitches, [~~or~~] and different volumes of sound.

62. **(Original)** The method of claim **59**, wherein scanning a series of points within the selected tissue with [~~the~~] radiation comprises scanning the series of points with [~~is~~] near-infrared radiation.

63. **(Original)** The method of claim **59**, wherein converting the set of numbers into a continuous grade output value corresponding to the location, within the probability band, of the number that characterizes the portion of the selected tissue comprises selecting a number that characterizes the selected tissue [~~is characterized~~] by the constituent concentrations within the [~~scanned~~] selected tissue.

64. **(New)** The method of claim **59**, further comprising defining the particular class to be vulnerable plaque.

65. **(New)** The method of claim **59**, wherein representing a portion of an image comprises representing a portion of an image using a shade of gray from a gray scale.

66. **(New)** The method of claim **59**, further comprising selecting the first end point on the basis of spectral data obtained from control tissue obtained from the same patient as the selected tissue.

67. (New) The method of claim 59, further comprising selecting a sensitivity for determining that the selected tissue belongs to a particular class; and selecting the first end point on the basis of the selected sensitivity.

68. (New) The method of claim 59, wherein defining the band having first and second end points corresponding to first and second values of the probability comprises selecting the first and second end points to be chemometric prediction values.

69. (New) The method of claim 68, further comprising selecting a particular probability and selecting at least one of the chemometric prediction values on the basis the particular probability.